



# County of San Diego Parking Design Manual

Department of Planning & Land Use



**February 2013**





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## I. INTRODUCTION

The Parking Design Manual was prepared for property owners, architects, engineers, developers, landscape architects and others that are involved with use and the development of land in the unincorporated County of San Diego to provide guidance on how to design parking areas that are in compliance with the County's regulations and procedures (Section 6750 et seq. of the County of San Diego Zoning Ordinance, herein referred to as the "Zoning Ordinance"). Review the property's zoning regulations to determine if additional requirements apply.

### A. Applicability

This Parking Design Manual implements Section 6792 of the Zoning Ordinance of San Diego County:

"The design, dimensions, construction, landscaping, and surfacing of parking and bicycle spaces, driveways and other areas shall conform to the County Parking Regulations. Additional guidance is provided by the County Parking Design Manual."

Notwithstanding the provisions of this manual, parking area design may be subject to the County of San Diego Consolidated Fire Code and responsible Fire Authority regulations due to health and safety reasons.

Refer to the property's zoning regulations to determine if additional requirements apply.

### B. Purpose

The purpose of the Parking Design Manual is to provide guidance in the design and development of parking areas which are safe, functional, low impact, adequately landscaped, properly screened in design, and encourage pedestrian and bicycle activity. Incorporating appropriate design elements into parking design minimizes the impacts of a parking area on the environment. Environmental impacts that may be affected by parking design include visual aesthetics, excessive noise or lighting, stormwater runoff, and traffic impacts, particularly when adjacent to residential areas. The intent of this manual is to supplement the Zoning Ordinance with regard to the aspects of design of a parking area. Parking regulations and parking ratios by land use are contained in Sections 6750 through 6799 of the Zoning Ordinance. Fencing regulations are found in Section 6700 through 6749 of the Zoning Ordinance. Water conservation and landscaping regulations are found in the County Code of Regulatory Ordinances Section 86.701 et seq. which includes landscape design guidelines and installation specifications.



## II. GENERAL PARKING PROVISIONS

The design of parking areas will vary based on the qualities and conditions of each property. However, the overall goal for achieving well designed, low impact, and adequately landscaped parking areas is consistent for all parking areas. Below are the general parking provisions to guide the design of parking areas within the County. Review of the property's zoning regulations will determine if additional requirements apply.

### A. Required Parking

Each land use shall provide at least the minimum number of parking spaces as required by the Zoning Ordinance, except where a parking reduction has been granted by the Director of Planning and Land Use or as approved with a building or discretionary permit.

### B. Change or Increase in Use

When the occupancy or use of a property is changed, enlarged, expanded, or intensified, adequate parking to meet the requirements of Section 6753 of the Zoning Ordinance shall be provided for the new use or occupancy.

### C. Parking and Loading Spaces

Parking and loading spaces shall be marked, maintained, and permanently available for the use they are intended to serve, per Section 6753 of the Zoning Ordinance. Owners, lessees, tenants, or persons having control of the parking or loading spaces cannot prevent, prohibit or restrict the utilization of parking and loading spaces.

Loading spaces should be permanently reserved and maintained for the temporary parking of commercial vehicles while loading or unloading merchandise or materials. Loading and unloading activities should not obstruct access to any parking space.

Required parking and loading areas shall be used exclusively for the parking and loading of vehicles and not be used for the sale, lease, display, repair, or storage of vehicles, trailers, boats, campers, mobile homes, merchandise or equipment without a required permit, County approval, or where required by the Zoning Ordinance.

### D. Exceptions

Exceptions to the requirements in this document may be allowed with County approval through a variance or discretionary permit. Exceptions must be supported by a finding that a safety hazard and/or site distance issue will not affect the design of the parking area. The Director of Planning and Land Use may administratively waive certain requirements or regulations, which are not subject to a variance or discretionary permit.



### III. PARKING DESIGN

This section provides design strategies and requirements for parking plans, parking spaces, driveways, aisle widths, parking areas, walls and fences, access, circulation, pedestrian access, bicycle parking, surfacing, directional indicators, lighting, stormwater treatment and landscaping.

#### A. Parking Plan Requirements

Where required, parking plans submitted to the Department of Planning and Land Use shall include the following, as a minimum, per Section 6790 of the Zoning Ordinance:

1. The number of parking spaces required for each land use
2. The total number of parking spaces required and provided
3. The number of accessible car spaces required and provided
4. The number of bicycle parking spaces required and provided
5. The percent of area devoted to landscaping
6. For multi-family residential projects, the distribution and proximity of parking spaces in relation to residential entrances

Additional information may be required by the Director as necessary to determine compliance with parking regulations and this Design Manual.

#### B. General Parking Guidelines

##### 1. Location

Per Section 6785 of the Zoning Ordinance, all required parking and bicycle spaces shall be located on the same legal parcel with the primary use or structure, or in a location conforming to a building permit or discretionary permit approved by the Department of Planning and Land Use, unless the project meets the collective parking provisions of Section 6788 or all of the following:

- a. There is a traversable pedestrian route, not more than 600' in length, over and along public streets or walkways or permanently established easements between the parking or bicycle spaces and the uses or structures served; and
- b. The site is subject to the S86 Parking Regulations; or all persons owning an interest in the site have executed and recorded an agreement not to oppose a reclassification to the S86 Parking Use Regulations, and then make application and pay the fees for this reclassification.

Sites located within the Fallbrook Village Zones must meet the Fallbrook Village Parking Regulations, per Section 8000 et seq. of the Zoning Ordinance.



Required parking or loading facilities may not be placed within the public right-of-way.

Uncovered parking spaces shall be located outside the designated ultimate right-of-way of any street per Section 4800 et seq. of the Zoning Ordinance and as shown in **Table 1**. An illustration of parking area lot location requirements is shown in **Figure 1**.

**Table 1  
Parking Area Requirements**

Zone Use Regulation	Yards			
	Front	Side (Interior)	Side (Exterior) Corner Lot	Rear
All Residential	Not Permitted	Permitted with fence or wall <sup>1</sup>	Not Permitted	Permitted
All Agricultural	Not Permitted	Permitted with fence or wall <sup>1</sup>	Not Permitted	Permitted
S-80 (Open Space) S-81 (Ecological Resource) S-88 (Specific Plan) S-90 (Holding Area) S-92 (General Rural)	Not Permitted	Permitted with fence or wall <sup>1</sup>	Not Permitted	Permitted
C-30 (Office-Professional) C-31 (Residential-Office-Professional) C-46 (Medical Center)	Not Permitted	Permitted	Permitted	Permitted
Other Commercial	Permitted	Permitted	Permitted	Permitted
All Industrial	Permitted	Permitted	Permitted	Permitted
S-82 (Extractive Use) S-86 (Parking) S-94 (Transportation & Utility Corridor)	Permitted	Permitted	Permitted	Permitted
Fallbrook Village <sup>2</sup> V1 – V5	Not Permitted	Permitted in the rear half of the lot only	Permitted in the rear half of the lot only	Permitted in the rear half of the lot

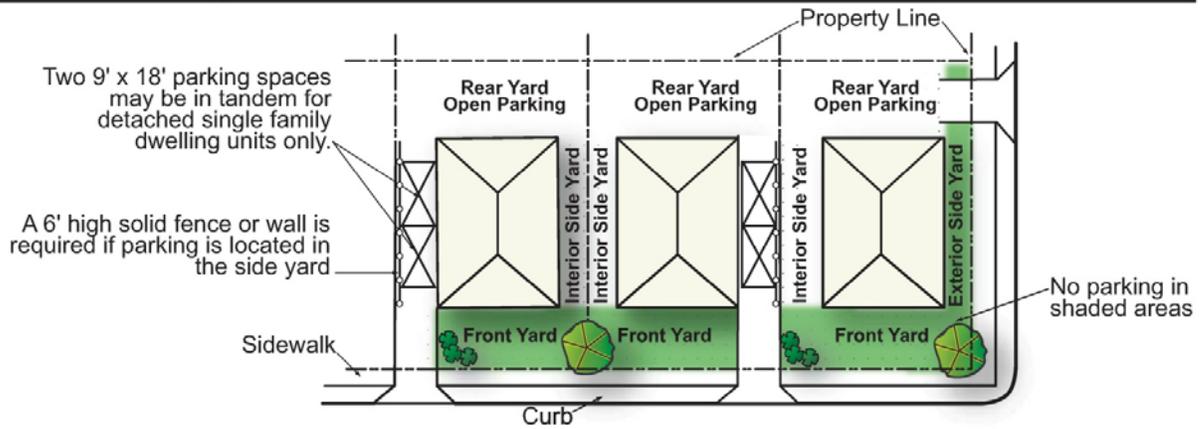
<sup>1</sup> See Section III – G: Walls and Fence

<sup>2</sup> See Section 8000 et seq., Fallbrook Village Regulations, and Section 5761 c, Parking Requirements Within Special Parking Districts, for special parking provisions applicable to Fallbrook Village, Zones V1 through V5.

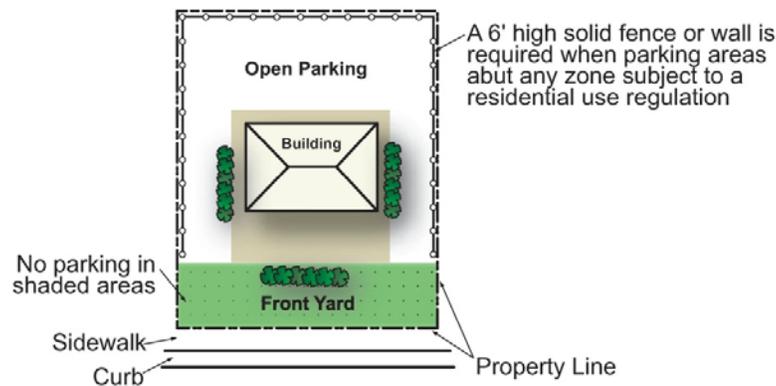


### Figure 1 Example Parking Locations by Use

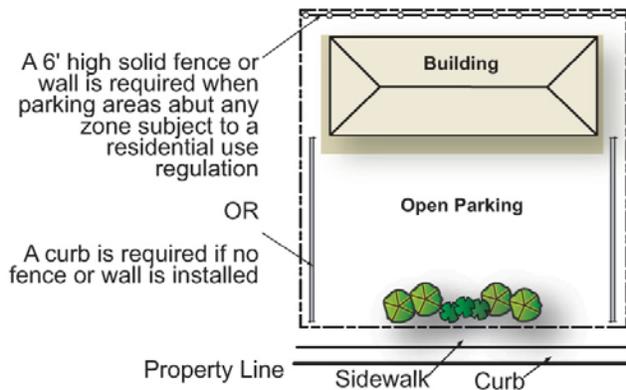
#### Residential and Agricultural Use



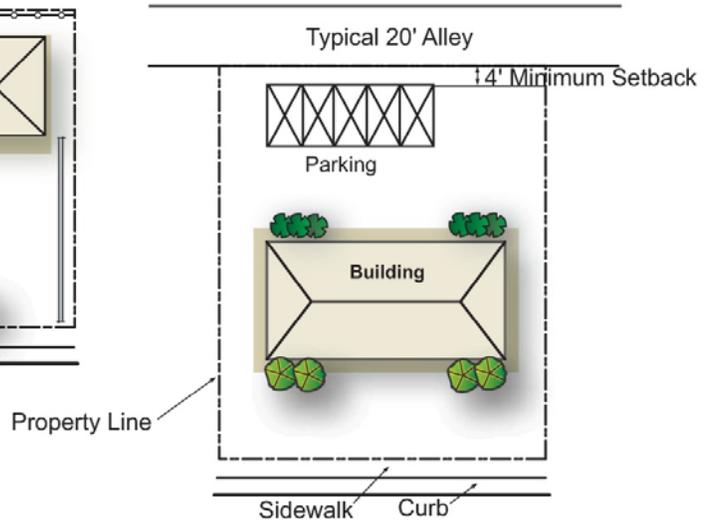
#### Office Use



#### Commercial or Industrial Use



#### Parking from Alley





## 2. Setbacks

Some zones require parking to meet setbacks. Setback requirements for parking areas are provided in Section 4810 of the Zoning Ordinance.

## 3. Access

### a. Access to Public Street

Parking area layouts should be designed so that exiting vehicles do not back into a public street (not applicable to single family units, duplexes, or triplexes).

### b. Public Right-of-Way and Easements

For any work in the public right-of-way or in any public easement, a right-of-way Construction, Encroachment, Planting and/or Excavation Permit may be required. Please note that the road right-of-way typically extends ten or more feet past the road pavement surface. Contact the Department of Public Works for assistance in obtaining right-of-way permits.

## 4. Circulation

### a. Size of Circulation Route

Size vehicle circulation routes according to use. Avoid using over-sized driveways, drive aisles and turning radii.

### b. Coordination with Major Drive Aisles

Where circulation routes requires wider driveways and turning radii (i.e. fire lanes), coordinate the location of these routes with major drive aisles.

### c. Continuous Circulation

Provide continuous circulation throughout the site. Avoid dead end driveways and turn around spaces

## 5. Sight Distance

### a. Intersections

Intersections of driveways onto public roads are required to meet the County Public Road Standards and sight distance requirements. The County Public Road Standards state that Sight Distance "shall have priority over all other standards and shall be achieved within the standard right-of-way." Consult with a design professional (Civil Engineer, Licensed Land Surveyor, or Traffic Engineer) in order to determine the best location and design of driveways with respect to sight distance and the location of vegetation, fencing, and walls along or near intersections of driveways onto both Public and Private Roads.

### b. Onsite Parking and Driveways

Ensure unobstructed motorist and pedestrian sight distance and provide clearly marked crossings at all intersections between vehicle routes and pedestrian pathways.



## 6. Pedestrian Access

Direct and continuous pedestrian networks within and adjacent to parking lots should be provided to connect building entrances, parking spaces, public sidewalks, transit stops and other pedestrian destinations.



Example of Pedestrian Pathway through Parking Lot

In larger parking lots or where parking lots serve more than one building or destination, provide pedestrian pathways to direct safe travel through the parking lot. Where feasible, pedestrian pathways should be differentiated from the parking area through the use of landscaping, sidewalks, pavement materials, striping, or other design elements to alert motorists of pedestrian areas.

The width, number, and orientation of pedestrian routes should match the anticipated flow of pedestrian traffic through the site. When planning the width and location of pedestrian routes, consider the space requirements for equipment related to parking lot use, such as shopping carts, strollers and mobility aids.

In addition, an Americans with Disabilities Act (ADA) accessible pedestrian path of travel between the main building entrance and the public sidewalk shall be provided per the California Code of Regulations (Title 24) of the California Building Code (Chapter 11B) for Accessible Parking Standards.

## 7. Accessible Parking Regulations

The Americans with Disabilities Act (ADA) governs the construction and alteration of public places, commercial facilities, and state and local government facilities to accommodate and provide adequate facilities for persons with disabilities. Requirements are covered under the California Code of Regulations (Title 24) of the California Building Code (Chapter 11B) for Accessible Parking Standards. Key components of current (2012) ADA parking standards are provided below. Please refer to **Figure 2** below for an example of accessible parking standards.



Accessible Parking



### a. Required Accessible Parking

Accessible parking is required for all new parking lots and in existing lots when alterations, structural repairs, or additions are made. Accessible parking spaces are required to be on the shortest accessible route of travel from parking to the building entrance(s).

### b. Number of Required Spaces

The number of required accessible parking spaces for each lot is dependent on the total number of parking spaces provided. The first accessible parking space must be a van accessible space with an access aisle. **Table 2** below shows the number of spaces currently required by Title 24. Title 24 regulations should be reviewed for any change in the number of required spaces.

### c. Size of Space

The minimum size of an accessible parking space shall be 9' wide by 18' in length. A 5' wide marked "No Parking" loading area shall be provided adjacent to all accessible parking spaces. An adjacent space may share a loading area. When only one accessible parking space is required, the location of the loading space shall be on the passenger side.

One in every eight accessible spaces, but not less than one, shall be served by a van accessible space with a loading area of at least 8' wide.

Figure 2: Example of Accessible Parking Standards

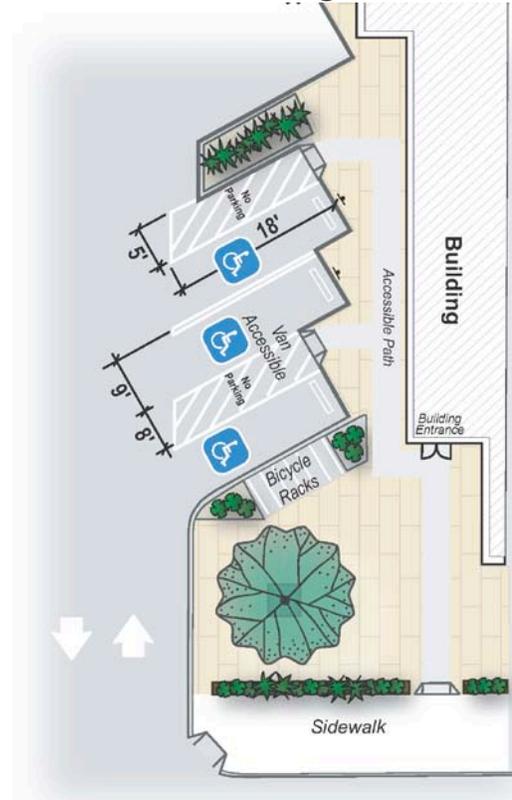


Table 2

Required Minimum Number of Accessible Spaces

Total Number of Parking Spaces	Required Minimum Number of Accessible Spaces
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1000	2 percent of the total (rounded to a whole number)
1001 and over	20 plus 1 for each 100 over 1000



#### d. *Parking Space Location*

Accessible parking spaces and access aisles shall be located:

- ◆ Along the shortest accessible route of travel between the parking space and primary accessible entrance with a minimum 4' wide sidewalk.
- ◆ Where the slope of finished grade in any direction does not exceed  $\frac{1}{4}$ " (or 2 percent) per foot.
- ◆ Where persons with disabilities are not required to pass behind a parked vehicle other than their own and are not required to cross a driveway, where possible. This requirement may be waived when compliance to regulate creates an unreasonable hardship.

#### e. *Miscellaneous Requirements*

- ◆ Ramps to accessible walks and paths shall not encroach into parking areas except ramps at the interior end of a parking space, which may encroach into the loading area provided it does not impede a person with disabilities to access their vehicle.
- ◆ Curbs and or wheel stops shall be installed to prevent vehicles from projecting over the sidewalks and pathways.

Garages or parking areas shall maintain a minimum vertical clearance of 8'-2" for access to all accessible parking spaces. This requirement may be waived by the Director when compliance to regulate creates an unreasonable hardship.

## C. **Parking Standards**

### 1. **Parking Space Dimensions**

Each required parking space shall be at least 9' wide by 18' long, with adequate provisions for ingress and egress by a standard full size passenger vehicle, per Section 6792 of the Zoning Ordinance. Parking spaces in parking lots shall comply with the minimum dimension requirements in **Table 3** and as illustrated in **Figure 3**. Minimum parking dimensions for common parking layouts are illustrated in **Figure 4**. An illustrated example of parking lot angles and dimensions is provided in **Figure 5**. Minimum parking dimensions for additional parking configurations are provided in Table A-1 in Appendix A.

#### a. *Overhang, Abutments, and Adjacent Objects*

Per Section 6792 of the Zoning Ordinance:

- ◆ The length of the parking space and use of wheel stops shall be implemented in a manner that assures vehicle overhang will avoid contact with abutting objects such as landscaping, irrigation, or walls and vehicle intrusion on walkways.



- ◆ The width of a parking space shall be increased by 2'-0" when adjacent to fences, walls, or planters.
- ◆ All driveways and curb openings shall be a minimum of 3' from any obstruction, i.e. poles, hydrants, buildings, walls, and fences.

### **b. Loading Spaces**

Loading spaces shall be a minimum of 10' wide by 35' long per Section 6786 of the Zoning Ordinance.

## **2. Parking Aisles**

### **a. One-Way and Two-Way Traffic Aisles**

Per Section 6792 of the Zoning Ordinance:

- ◆ One-way access driveways leading to aisles within a parking area shall be a minimum of 12'.
- ◆ Two-way aisles and access driveways leading to aisles within a parking area shall be a minimum of 24'.

Minimum aisle widths for one-way drive aisles within a parking area are shown in Table 2.

### **b. Fire Access Aisles**

Designated fire access aisles must comply with the County's Consolidated Fire Code and/or the Fire Authority Having Jurisdiction. Minimum unobstructed fire access width is 24'. Inside turning radius minimum is 28'. Vertical clearance minimum is 13'-6". The Fire Authority Having Jurisdiction may require greater dimensions. For more information regarding Fire Code standards, contact the San Diego County Fire Authority.

### **c. Truck Aisles**

Access aisles for multiple-axle trucks in commercial and industrial projects shall be a minimum width of 40' for projects with a gross floor area of 10,000 square feet or greater or where the design of the project includes a loading dock, per Section 6792 of the Zoning Ordinance. Truck movement templates (i.e. turning radii elements including wheel paths, which define the needed width of pavement edge that must be clear from obstructions above curb height) shall be included on the site plan to indicate turning conditions per Section 6792 of the Zoning Ordinance.



**Table 3**  
**Minimum Parking Layout Dimensions**

Figure 3 Label	Design Component		Parking Angle				
			0° (Parallel)	30°	45°	60°	90°
A	Stall Width		9'(8') <sup>1</sup>	9'	9'	9'	9'
B	Stall Length		22'	18'	18'	18'	18'
C	Stall Width Parallel to Aisle		N/A	18'-0"	12'-9"	10'-5"	9'-0"
D	Stall Depth to Curb or Wall		N/A	16'-10"	19'-1"	20'-1"	18'-0"
E	Stall Depth to Interlock		N/A	12'-11"	15'-11"	17'-10"	18'-0"
F	Aisle Width <sup>2</sup>	One-Way	13'	14'	16'	19'	N/A
		Two-Way	24'	22'	24'	24'	26'
G	Module Width Wall/Curb to Interlock	One-Way Aisle	N/A	43'-9"	51'-0"	46'-11"	N/A
		Two-Way Aisle	N/A	51'-9"	59'-0"	61'-11"	62'-0"
H	Module Width Interlock to Interlock	One-Way Aisle	N/A	39'-10"	47'-10"	54'-8"	N/A
		Two-Way Aisle	N/A	47'-10"	55'-10"	59'-8"	62'-0"
not shown in Figure 3	Module Width Wall/Curb to Wall/Curb	One-Way Aisle	31'-0"	47'-8"	54'-2"	59'-2"	N/A
		Two-Way Aisle	42'-0"	55'-8"	62'-2"	64'-2"	62'-0"
I	Cross Aisle Width <sup>2</sup>	One-Way	15'	15'	15'	15'	15'
		Two-Way	22'	22'	22'	22'	22'

<sup>1</sup> 8' width applies to on-street parking stalls

<sup>2</sup> The Director may require greater aisle width due to emergency San Diego County Fire Authority equipment access needs. Aisles less than 24' shall not be designated as Fire Access.

N/A – Not Applicable

**Figure 3**  
**Reference Drawing for Minimum Parking Dimensions**

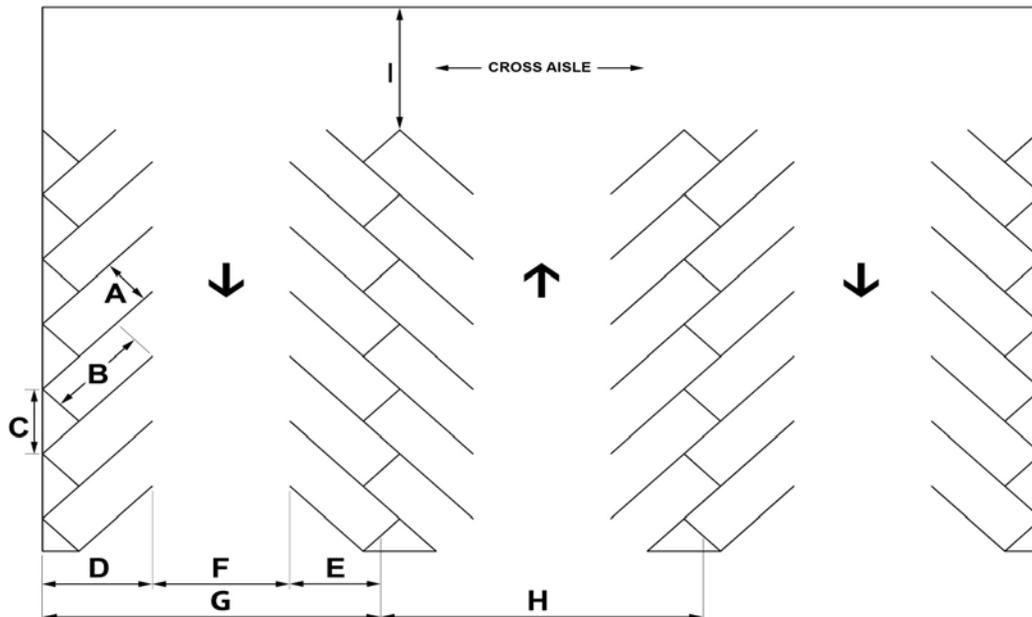
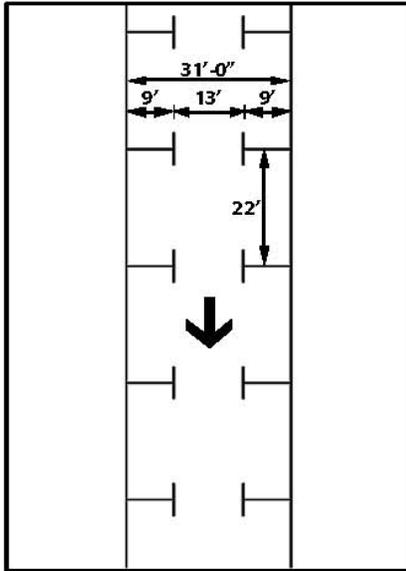
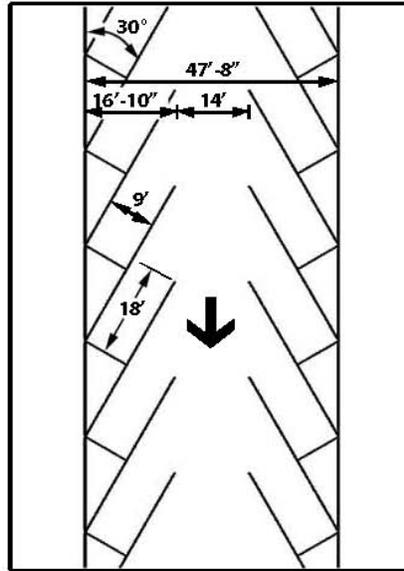




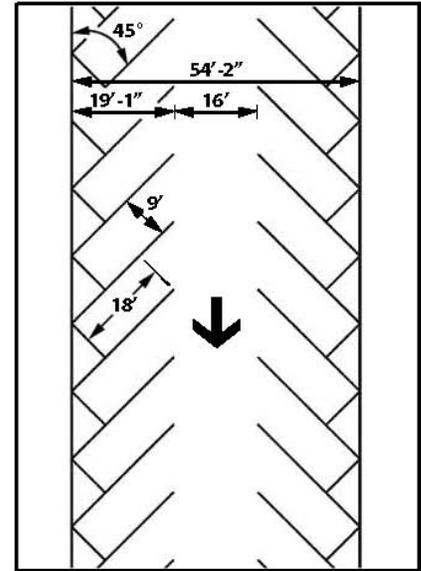
Figure 4  
Minimum Dimensions for Common Parking Lot Layouts



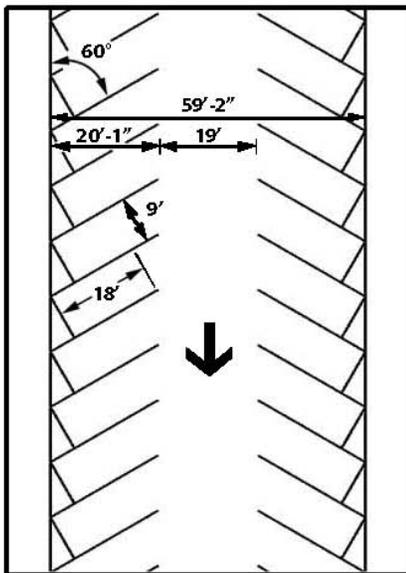
0° Parallel Parking Spaces



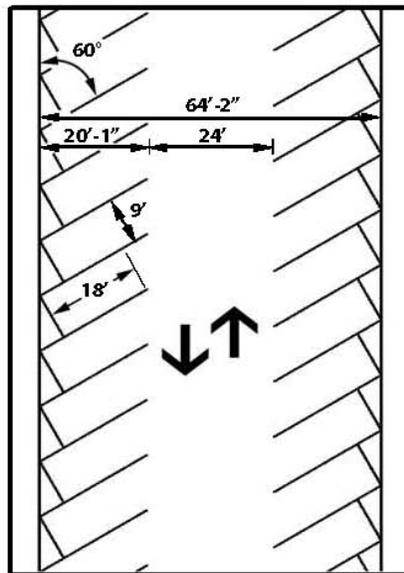
30° Parking Spaces



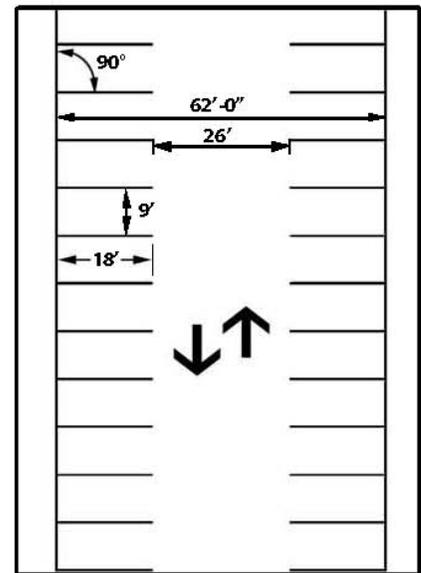
45° Parking Spaces



60° Parking Spaces  
One - Way



60° Parking Spaces  
Two - Way



90° Parking Spaces

Introduction

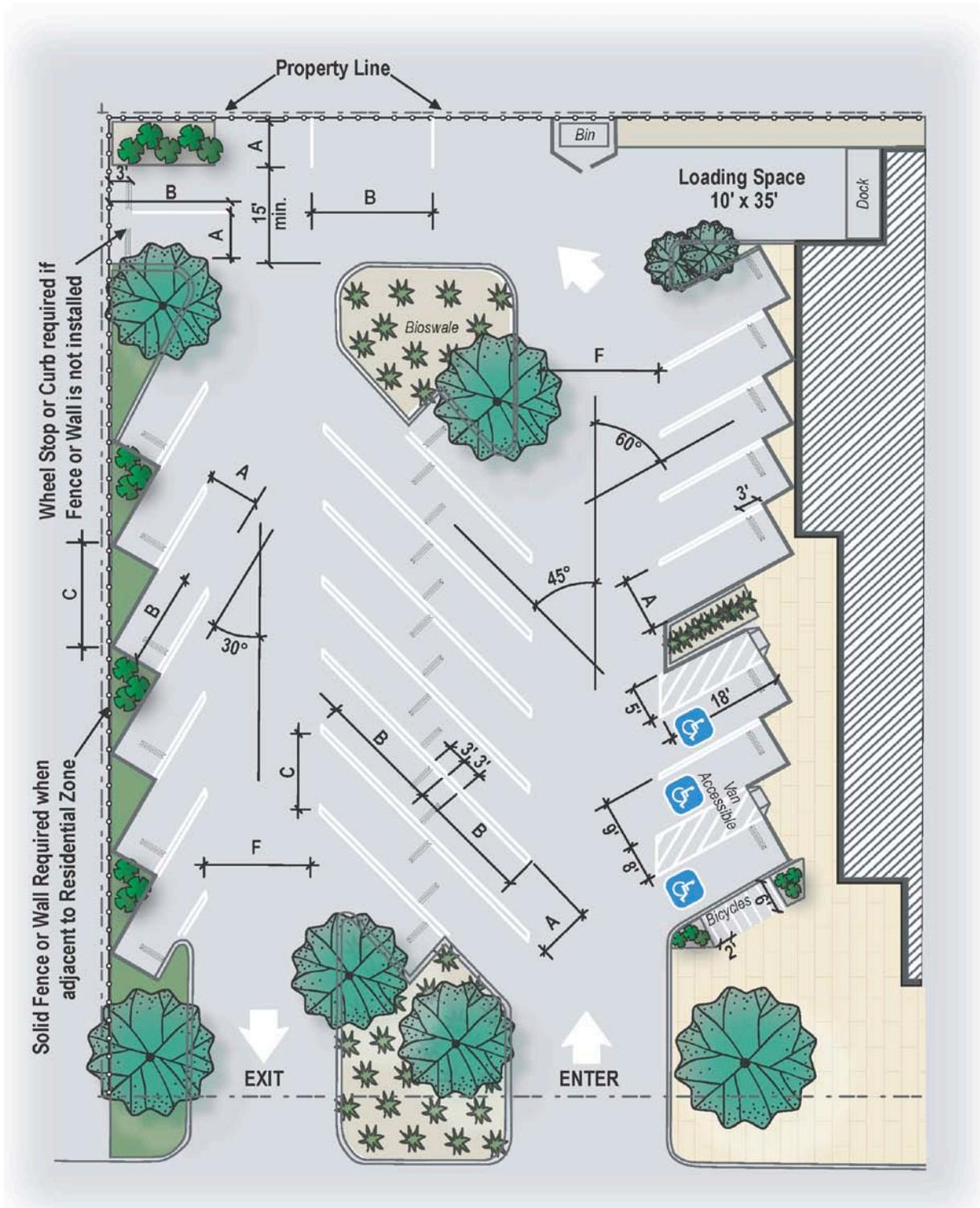
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Figure 5  
Example of Parking Lot Angles and Dimensions



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#### **d. Drive-Through Aisles**

All projects which feature drive-through facilities (bank, pharmacy, fast-food, etc.) shall provide a drive-through aisle capable of a reasonable queuing of vehicles without impeding the circulation of traffic within the parking area or abutting driveway or street travel way. Drive-through aisles should not cross pedestrian pathways and be clearly designated with striping and/or signage. See the Zoning Ordinance for specifications.

### **3. Access Driveways**

The construction, repair, and maintenance of all driveways, curbs and gutters, and sidewalks are the responsibility of the property owner, developer, or tenant. The responsibility includes the entire area of driveway from the edge of the existing pavement of traveled way to the property line and all culverts or other structures necessary for property drainage control.

A residential driveway is any driveway serving property used solely as a private single, duplex, or triplex residential dwelling unit, including farms or ranches not used as retail outlets. All other driveways are considered commercial driveways. For specifications on residential driveways, see Section III D.

All residential and commercial driveways designated as a fire access road shall comply with the County's Consolidated Fire Code.

To minimize interference with the flow of traffic and provide optimum access, driveway design should also consider:

- ◆ line of sight,
- ◆ offset to adjacent and opposing driveways, and
- ◆ proximity to nearby intersections.

Parking facilities should be designed to minimize the number of driveways to private property from streets and highways.

Not more than 40% of property frontage on residential lots and 60% of property frontage on non-residential or multi-family residential lots may be allocated for driveway curb openings, except for lots with frontage of 50' or less, which are entitled to one 16' driveway with a 22' curb opening.

Refer to the County of San Diego Public Road Standards and Standards for Private Roads for additional information.

### **4. Slope / Grade**

#### **a. Driveway Slope/Grade**

Commercial and multi-family residential driveways serving parking lots with 5 or more spaces should not exceed 15 percent grade. The Fire Authority Having Jurisdiction may allow driveway grades up to 20 percent with mitigation. Crown or cross-slopes of driveways shall be 2 percent except the minimum cross-slope



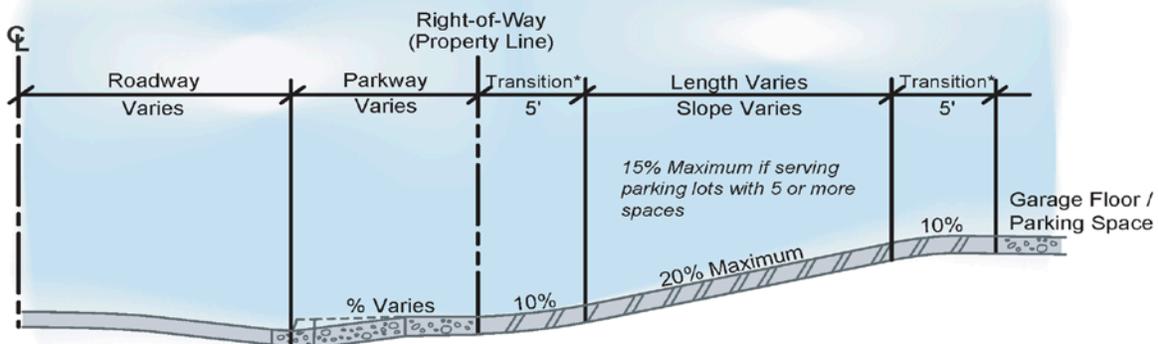
may be 1 percent and the maximum cross-slope may be 5 percent where physical conditions do not warrant 2 percent. The angle of departure and angle of approach of driveways shall not exceed 12 percent.

Driveway grades should conform to the roadway cross-slope within the traveled way and parking lanes of the ultimate section of the roadway. Within the right-of-way, driveway grades should conform to sidewalk grades, if sidewalks are provided. See **Figure 6** for typical commercial and multi-family residential driveway profiles.

Where driveways cross existing roadside ditches, a dip section providing an unobstructed waterway equivalent to the full area of the ditch may be used if grades are feasible. Where grades make use of a dip section infeasible, a culvert pipe should be installed. The size of the culvert pipe and design of the driveway culvert shall be reviewed for adequacy by the Department of Public Works.

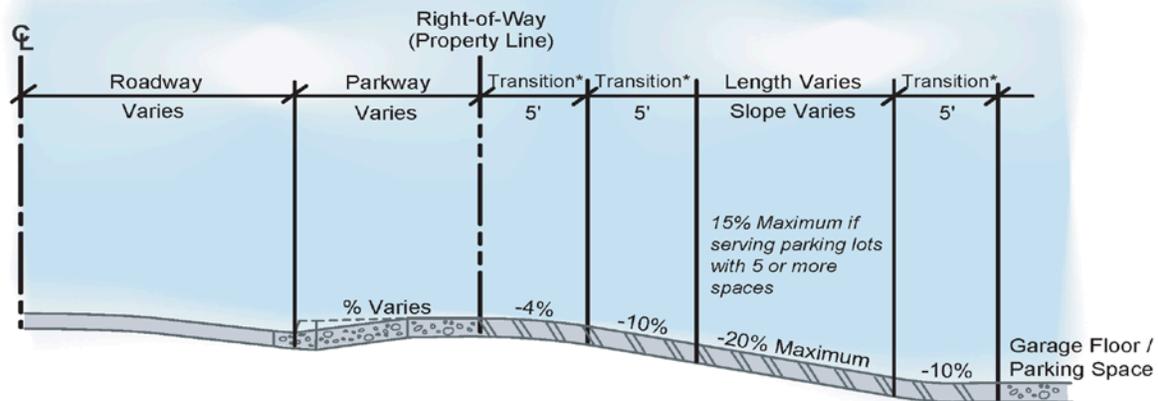
**Figure 6**  
**Example of Commercial Driveway Slope Gradients**

### Uphill Driveway



*\*Transitions apply to driveway slope gradients greater than 14%.*

### Downhill Driveway



*\*Transitions apply to driveway slope gradients greater than 14%.*

**NOTE: Driveways designated as fire access roads shall comply with the Fire Authority Having Jurisdiction (FAHJ), e.g. the County of San Diego Consolidated Fire Code or the County Fire Marshal.**

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**b. Parking Lot Slope/Grade**

Parking lot grades should be limited to a minimum grade of 1 percent slope and a maximum grade of 6 percent slope to ensure proper drainage.

## 5. Parking Details

**a. Surfacing**

Per Section 6792 of the Zoning Ordinance, except for zones subject to the Agricultural Use Regulations, all parking spaces, loading spaces, and driveways shall be hard surfaced with durable asphalt concrete or Portland Cement Concrete surfacing on a suitably prepared base. Parking spaces and driveways accessory to single-family and duplex dwellings need not be surfaced with a more durable type of surfacing than that which exists on the access street. Driveways and aisles designated for fire access must be capable of supporting fire apparatus (minimum 50,000 pounds) unless a greater minimum is required by the Fire Authority Having Jurisdiction.

**Table 4** summarizes the required paving thickness of A/C and base according to soil classification, and shall be used unless a suitable alternative pavement design by a registered civil engineer is submitted and approved by the Director. Soil classifications are as established based on the R-value, or resistance value, which identifies the strength of soil from vertically applied pressure. R-value is a factor used in pavement design in the San Diego Regional Standard Drawings to determine the necessary thickness of paving required. Soil classifications identified in Table 4 are established as follows:

Good to Excellent Subbase: soil with an R-value of 40 or greater.

Medium Subbase: soil with an R-value of 20 to 39

Poor Subbase: soil with an R-value less than 20

Where permeable surfacing alternatives are desired or required to protect surface water quality and/or implement Low Impact Development practices, an alternative design which demonstrates adequate material strength, satisfaction of local and regional standards, and community character preferences may be approved by the Director. Structural equivalence should be demonstrated based upon published criteria by Caltrans or AASHTO.

Within the desert areas of the North Mountain, Mountain Empire, and Desert Subregional Plan areas, 4" of decomposed granite or suitable alternate material may be approved by the Director in lieu of more durable paving on residential driveways.



**Table 4  
Required Thickness of A/C and Subbase**

Existing Soil Classifications	Residential Parking (≤ 4 spaces)	Multi-Family Commercial Frontage Parking	Commercial Truck Loading and Parking
<b>GOOD TO EXCELLENT BASE</b> Decomposed granite, well graded sands and gravels which retain load supporting capacity when wet	2" A/C on existing soil	3" A/C on existing soil	3" A/C on 5" aggregate base or 4" A/C on aggregate base or 5" A/C on existing soil
<b>MEDIUM BASE</b> Silty sands and sand gravels containing moderate amounts of clay and fine silt. Retains moderate amount of firmness under adverse moisture conditions	2" A/C on 6" of decomposed granite base or 3" A/C on 3" aggregate base or 4" on existing soil	3" A/C on 5" aggregate base or 4" A/C on 3" aggregate base or 5" on existing soil	3" A/C on 7" aggregate base or 4" A/C on 5.5" aggregate base or 6" A/C on existing soil
<b>POOR BASE</b> Soils having appreciable amounts of clay and fine silt. Soils become quite soft and plastic when wet	3" A/C on 5.5" aggregate base or 5" A/C on existing soil	3" A/C on 8" aggregate base or 4" A/C on 5.5" aggregate base or 6" A/C on existing soil	3" A/C on 12" aggregate base or 4" A/C on 10.5" aggregate base or 8" A/C on existing soil

**b. Wheel Stops / Curbs**

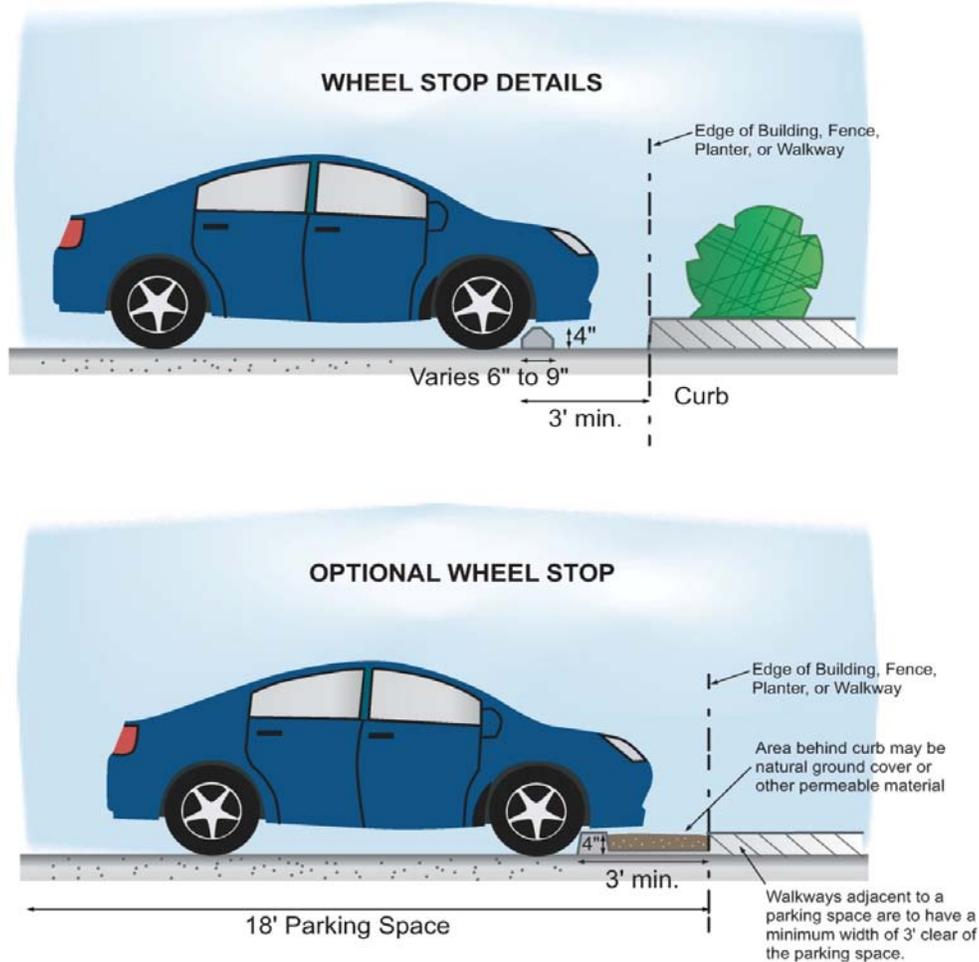
Per Section 6792 of the Zoning Ordinance:

- ◆ If a wheel stop is used, the length shall be 4' to 6' long and 4" high.
- ◆ If a wheel stop with overhang area is installed in parking space, the distance from the front end of the space to the rear of the wheel stop shall be 3'. It shall be placed so as to avoid bumper overhang beyond the designated parking space and to avoid creating a safety hazard for pedestrians.

Figure 7 illustrates typical wheel stop dimensions.



Figure 7  
Example Wheel Stop Dimensions



Vehicular bumper overhang is prohibited in all areas where the parking stall is adjacent to a pedestrian walkway of less than 7' in width, planter beds (unless the first 3' from curb is low volume or subsurface irrigation, or is a non-irrigated material), a fence or wall, or a building or structure.

**c. Striping**

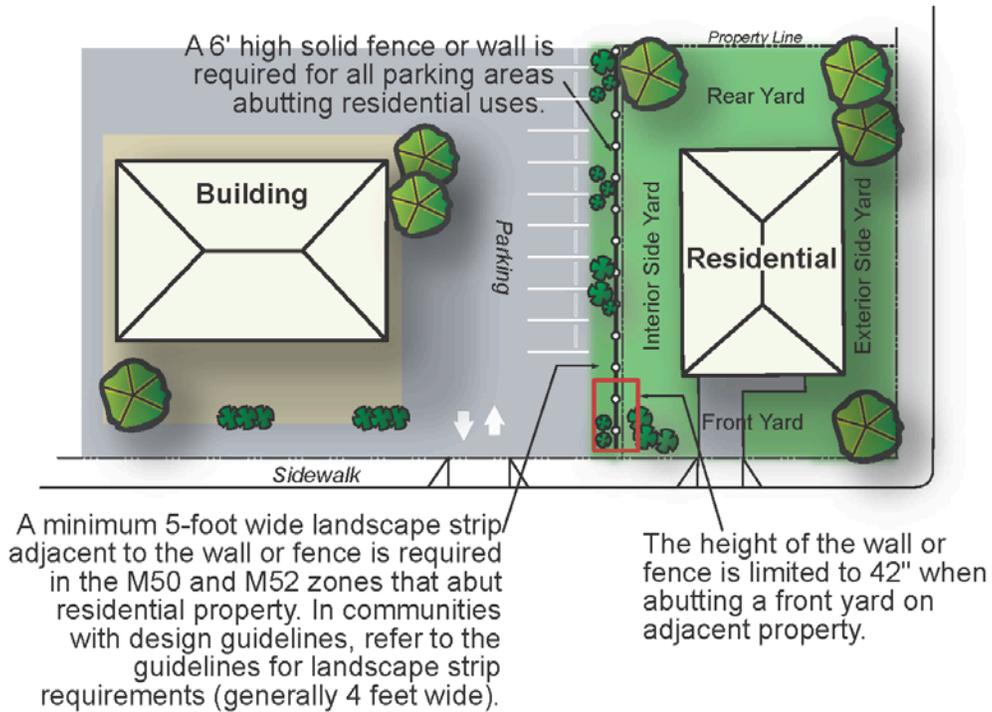
All parking spaces shall be delineated by striping consisting of 4" wide painted white lines, per Section 6792 of the Zoning Ordinance.

**d. Walls and Fences**

All parking areas of 5 or more parking spaces (and driveways serving such parking areas) located on parcels abutting property in any residential zone shall be separated by a properly maintained solid fence or wall 6' in height, per Section 6706 of the Zoning Ordinance and as illustrated in **Figure 8**. Where the fence or wall abuts a front yard on adjacent property, the height of a fence or wall is limited to 42". See "Access" and "Sight Distance" Sections of this Manual.



**Figure 8**  
**Walls and Fences**



**e. Directional Indicators**

Each parking area with more than one row of parking spaces should have directional signs or surface painted directional markers to guide traffic.

**f. Bicycle Parking**

Newly constructed non-residential uses shall provide bicycle parking in accordance with the 2010 California Green Building Standards Code Sections 5.106.4.1 and 5.106.4.2. The 2010 California Green Building Standards Code provides standards for the provision of both short-term bicycle parking for visitors and long-term bicycle parking for building tenant-occupants.

Bicycle spaces should be:

- ◆ Clearly designated for bicycle parking.
- ◆ Separated from motor vehicle parking areas and driveways by a barrier, such as a curb, rail, or bollard, or be located in a manner which will minimize the possibility of vehicles striking parked bicycles.



Bicycle parking spaces should be located:

- ◆ No farther than 100 feet from the visitors' entrance and be readily visible.
- ◆ As close and conveniently accessible to the use or building entrances as is the closest vehicle space, with the exception of accessible parking spaces.
- ◆ As close to the building entrances as is practical while maintaining a minimum bicycle access aisle of 5 feet and without interfering with pedestrian access.
- ◆ At ground level.

One bicycle parking space shall consist of a floor area at least 2' wide and 6' long, served by an aisle at least 5' wide for bicycle spaces which are not divided into individual lockers or racks, per Section 6792 of the Zoning Ordinance. Bicycle racks should be so designed and constructed that a bicycle can be securely locked with a user-supplied padlock. Racks shall provide a space at least 2' in width for each bicycle, per Section 6792 of the Zoning Ordinance.

Enclosed bicycle spaces may be used in lieu of open bicycle spaces. Structures or lockers containing enclosed bicycle spaces should be designed and constructed so that such structures or bicycles within them cannot be easily removed.

#### ***g. Compact Vehicle Parking***

Compact vehicle spaces are only allowed to be used as surplus parking and cannot be used to satisfy the minimum parking requirement per the Zoning Ordinance. Compact spaces should be no less than 8' wide and 16' long. Compact spaces should be restricted for use by compact vehicles and identified with pavement stenciling and/or signage. Compact spaces should be located furthest from the building entrances to discourage use by non-compact vehicles.

#### ***h. Tandem Parking***

Tandem parking represents a parking configuration where one vehicle parks directly behind another and the vehicle in back must be moved in order for the front vehicle to leave. Tandem parking shall be limited to a maximum of two cars in depth and no less than 9' wide and 36' long, per Section 6792 of the Zoning Ordinance. When determining access aisle widths for tandem parking, the aisle widths for standard stalls should be used. Accessible parking spaces should not be used in a tandem configuration.

Tandem parking stalls are only allowed for:

- ◆ Residential – single family, duplex, and townhome uses.
- ◆ Multi-family residential uses – subject to the following conditions:



- o The tandem spaces should be reserved for and assigned to dwelling units which are required to have two or more parking spaces.
- o Tandem spaces shall not be used for guest parking.
- ◆ Commercial uses – Tandem spaces should not be allowed for new commercial construction. Tandem spaces may only be allowed for existing commercial buildings or existing buildings that are undergoing a change of use and are subject to the following conditions:
  - o Tandem spaces should be reserved for use by employees and should be designated for employee parking through the use of signage or pavement marking.
  - o At least 50 percent of the required spaces should be unassigned standard (non-tandem) spaces that are available for the use of visitors.

### ***i. Clean Air Vehicle Parking***

In accordance with the 2010 California Green Building Standards Code, newly constructed non-residential uses shall provide designated parking for any combination of low-emitting, fuel efficient and carpool/van pool vehicles, per Section 6792 of the Zoning Ordinance, and as follows:

**Table 5  
Parking Requirement for Clean Air Vehicles**

Total Number of Parking Spaces	Required Clean Air Vehicle Spaces
0-9	0
10-25	1
26-50	3
51-75	6
76-100	8
101-150	11
151-200	16
201 and over	At least 8 percent of total

The designated parking spaces shall be identified with the words "CLEAN AIR VEHICLE". The words should be painted in white paint and the lower edge of the word "VEHICLE" should be aligned with the end of the stall striping to be visible beneath a parked vehicle. Parking spaces provided for clean air vehicle will be credited towards the minimum parking requirement per the Zoning Ordinance.

### ***j. Oversized Vehicle Parking***

Oversized vehicle parking in commercial areas (for any vehicle longer than 20') may be provided at the owner's discretion. If provided in meeting the parking



requirement, the oversized vehicle parking spaces should not be restricted. If provided in addition to the number of required parking spaces, the spaces may be restricted specifically for oversized vehicles with signage and/or surface paint. The design of oversized vehicle parking within a parking lot should consider the provision of adequate ingress/egress and circulation for the oversized vehicles through the parking lot.

#### ***k. Tractor Trailer Parking***

Where uses propose tractor trailer parking, tractor trailer parking spaces are recommended to be a minimum of 12' wide by 50' long.

#### ***l. Identification of Spaces***

All Accessible, Compact, and Loading spaces should be identified by symbols or lettering on signs or with surface paint.

## **6. Lighting**

Adequate lighting shall be provided in all parking areas used by the public for safe pedestrian and vehicular movement, per Section 6792 of the Zoning Ordinance.

#### ***a. Lighting Plan***

A Lighting Plan for the parking lot site shall be provided for all parking lots with 5 or more spaces, per Section 6792 of the Zoning Ordinance. Lighting should clearly identify the parking lot, entrances and exits to adjacent streets, and enhance the pedestrian environment. Lighting Plans should be appropriate to the location, context and scale of the areas being lit.

#### ***b. Lighting Level***

Required lighting levels for parking areas are stated in the County of San Diego Division 9 Light Pollution Code.

#### ***c. Minimize Light Reflection to Adjoining Uses***

All lights provided to illuminate any loading space or parking area shall be designed and adjusted to reflect light away from any public road, street, and any adjoining land zoned for non-business or non-industrial uses, per Section 6324 of the Zoning Ordinance.

#### ***d. Appearance***

The appearance and scale of luminaries should be coordinated with pedestrian walkways, parking spaces, building and site entrances, and other parking lot features.

#### ***e. Balance Safety and Energy Consumption***

Balance safety and security with the reduction of energy consumption and light pollution through the following measures:



- ◆ Ensure all parking spaces and circulation routes are well lit.
- ◆ Install lighting that is appropriately scaled to its purpose, i.e. avoid “over lighting”.
- ◆ Direct light downward and avoid light overspill on adjacent properties, streets and open spaces.
- ◆ Use energy efficient fixtures and bulbs.
- ◆ Incorporate opportunities for off-grid power generation, e.g. solar, wind, etc.

## 7. Landscaping

Landscaping in and around parking areas improves visual aesthetics, reduces soil erosion and carbon dioxide emissions, and provides shade while minimizing the heat island effect that results from asphalt and/or large building block surfaces such as parking lots. Therefore, adequate and properly maintained landscaping is a significant component to parking lot design.

Refer to the County of San Diego *Water Conservation in Landscaping Ordinance* and the *Water Efficient Landscape Design Manual* for current information regarding irrigation requirements. Irrigation requirements are provided in Section 86.709 of the *Water Conservation in Landscaping Ordinance* and Section E of the *Landscape Design Manual*.

### a. General Requirements

- ◆ In parking areas with 5 or more parking spaces, a minimum of 14 square feet of landscape shall be provided per parking space, per Section 6792 of the Zoning Ordinance. Landscaping may be provided in parking lot planters and/or for perimeter screening. Per Section 6792 of the Zoning Ordinance, parking lot landscaping shall be provided in addition to other landscaping requirements in the right-of-way or setback areas by the M50 and M52 Use Regulations, in some community design guidelines, by any other Ordinances or as a condition of a discretionary application approval.
- ◆ Every parking space should be within 30’ feet of the trunk or base of a tree to allow the tree canopy to provide heat relief and for screening purposes.
- ◆ Whenever possible, perimeter planters are encouraged along the edge of the parking area/driveway(s) and



Example of Perimeter Planting



between the building and the parking area. Perimeter planting brings relief from continuous areas of paving and screens parked cars from view of surrounding properties. In a large parking area, planters aid in the flow of automotive and pedestrian traffic by improving visibility and help filter storm water runoff. Fire requirements for canopy separation may be applicable as directed by the local fire district or the project's fire protection plan.

- ◆ A minimum of one 24" boxed tree per 5 parking spaces (rounded to the nearest whole number) is required for a parking area.
- ◆ Planter strips with shrubs shall have a minimum unpaved width of 2', per Section 6792 of the Zoning Ordinance. Planter strips with trees shall have a minimum unpaved width of 5'. Where feasible, the surface of the planter strips should be concave to help channel stormwater runoff.
- ◆ High shrubs or small trees may be used for perimeter planting, except at driveway entrances where plant material shall be positioned to avoid obstructing motorist views and be sensitive to sight distance requirements.
- ◆ Trees along designated fire access roads/driveways/aisles shall provide a minimum 13'-6" vertical clearance for the full fire access width.
- ◆ High canopy trees, low shrubs or ground cover are preferred so as to allow optimum traffic visibility.
- ◆ Landscape islands located at the end of parking aisles shall be a minimum of 2' shorter than the parking stall length to prevent wheels from running into the curb when turning in or backing out of a space.
- ◆ Please refer to "Access" and "Sight Distance" Sections of this Manual.

**Figure 9** illustrates the key landscaping requirements.

#### ***b. Recommended Practices***

The following are recommended practices that are encouraged to be implemented to the extent feasible.

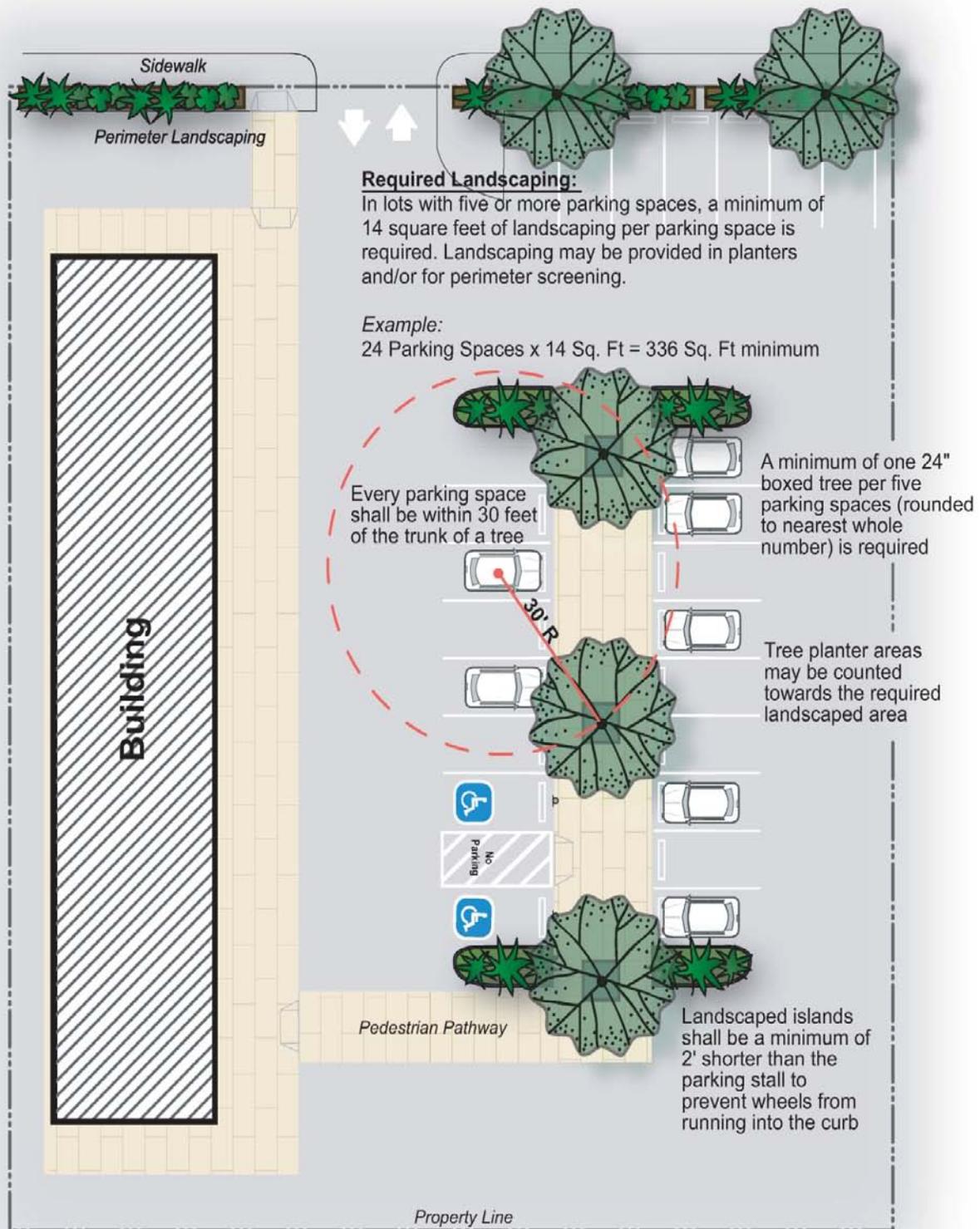
- ◆ Install drought tolerant landscaping with low water and maintenance requirements
- ◆ Install native plants
- ◆ Group plants together according to water, sun/shade, and soil requirements
- ◆ Minimize lawn areas as they are the most water intensive



- ◆ Install efficient irrigation systems
- ◆ Preserve and develop existing tree canopies, soils, and native vegetation
- ◆ Install landscaping in parking lots and walkways to reduce the heat island effect
- ◆ Minimize urban light pollution to maintain dark skies in rural County areas
- ◆ In parking lots, avoid trees that drip sap or drop large quantities of fruit, flowers, seed pods or leaves
- ◆ Avoid trees that shed large leaves that do not biodegrade quickly



### Figure 9 Landscaping Requirements for Parking Lots



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## 8. Stormwater Runoff Treatment

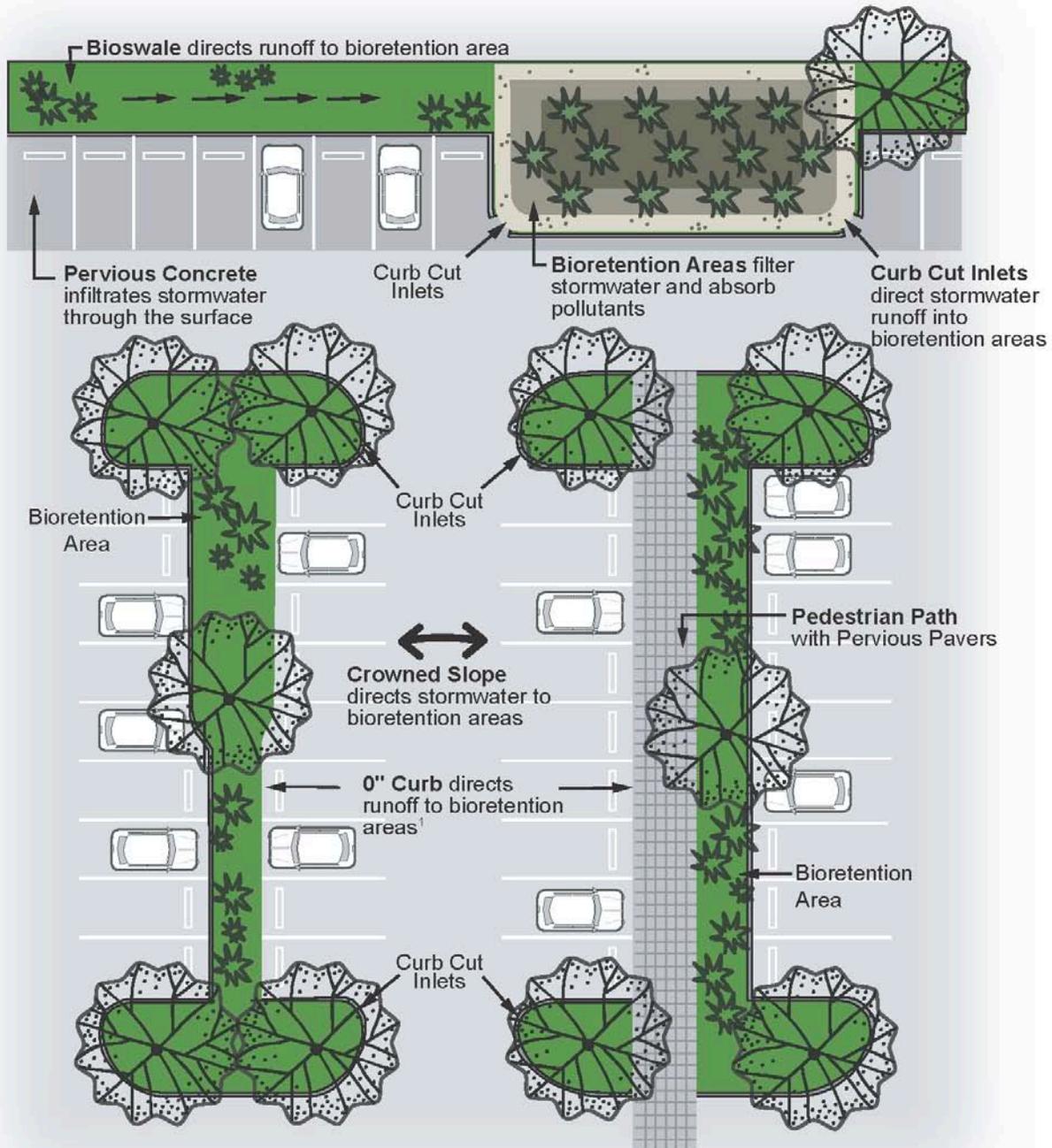
Stormwater runoff treatment for water quality and hydromodification flow-control may be required for a parking lot development. Water quality treatment of stormwater has become increasingly important in reducing the pollution to local water sources and maintaining water quality. Hydromodification flow-control is necessary to minimize a projects impact on receiving waters in terms of erosion, sedimentation, and degradation of in-stream habitat. Since parking is usually accommodated on an asphalt or concrete surface with conventional underground storm drain systems, parking areas typically generate large, connected impervious areas which make them a significant contributor to water quality degradation. Several strategies can be implemented to minimize and/or mitigate impacts to the water systems, including reducing impervious surfaces, using permeable materials in overflow parking areas and bioretention basins in parking lot islands, and perimeter landscaping.

Low-impact development (LID) is an approach to managing stormwater runoff by emphasizing conservation and the use of natural features to protect water quality. By implementing LID practices on a site, it is possible to minimize pollutants leaving the site and also mitigating potential hydromodification impacts to receiving waters. LID practices for individual sites should consider the site's land use, hydrology, soil type, climate, and rainfall patterns. Many types of LID approaches are practical for both new construction and renovation or retrofit projects. **Figure 10** illustrates examples of LID techniques that may be implemented in a parking lot. The design of LID facilities for water quality and flow control need to be coordinated at the earliest stages of design, due to the pitch of the parking lot and design and size of the LID facilities. Typical LID practices are summarized below. Projects are required to incorporate LID practices and strategies to the extent feasible.

For more information on sizing LID facilities for water quality and flow-control, please reference the [County of San Diego's Standard Urban Mitigation Plan \(SUSMP\)](#).



### Figure 10 Low Impact Development Techniques in Parking Lot



**Notes:**

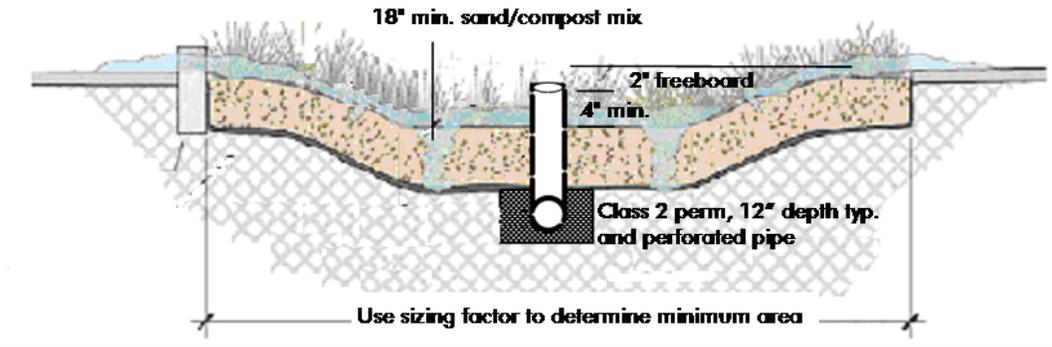
<sup>1</sup>Where 0" Curb is not feasible, such as for retrofit projects, grate inlets may be provided to direct stormwater under pedestrian walkway.

Reference: Central California Coast Low Impact Development Technical Assistance Memo



### a. *Bioretention*

Bioretention is the process of removing pollutants from stormwater runoff by collecting and treating stormwater in a treatment area, often consisting of a grass buffer, soil mix, gravel drainage layer, ponding area, underdrain, and plants. A bioretention facility can be designed for water quality and flow control. Bioretention areas can be configured in nearly any shape.



### b. *Permeable Pavement*

Permeable pavement is a special type of paving material with high porosity that allows water to pass directly through, which reduces the runoff from a site. Applications may include sidewalks, driveways, parking lots, and other large surfaces. Runoff that percolates through the surface of the pervious concrete is typically stored in a rock or gravel reservoir below the surface of the concrete.



Example of Permeable Pavers

### c. *Vegetated Swales*

Vegetated swales are landscape elements designed to filter surface water runoff before entering the storm drain system. A vegetated swale consists of a drainage channel filled with vegetation or compost materials. Vegetated swales may be applied in parking lots to treat runoff before releasing it to the watershed or storm drain. Vegetated swales should only be designed for water quality. If designed for flow control, it would need to be designed as a linear bioretention swale.



Example of a Vegetated Swale

#### **d. Recommended Practices**

The following are recommended practices that are encouraged to minimize stormwater runoff from parking areas.

- ◆ Preserve natural infiltration capacity
- ◆ Preserve existing draining patterns
- ◆ Protect existing vegetation and sensitive areas
- ◆ Minimize or disconnect impervious areas through the use of infiltration Best Management Practices (BMPs), capture/reuse BMPs, or filtration BMPs
- ◆ Minimize construction footprint
- ◆ Minimize unnecessary compaction
- ◆ Minimize removal of native vegetation and trees
- ◆ Re-vegetate disturbed areas
- ◆ Apply landscaping techniques to increase infiltration and decrease runoff
- ◆ Keep gutters and drains clean of leaves and debris
- ◆ Use slow-watering techniques where feasible
- ◆ Prevent over-watering landscaping
- ◆ Pitch paved areas into landscaping and LID areas

### **D. Residential Parking for Detached Single Family, Duplexes, and Triplexes**

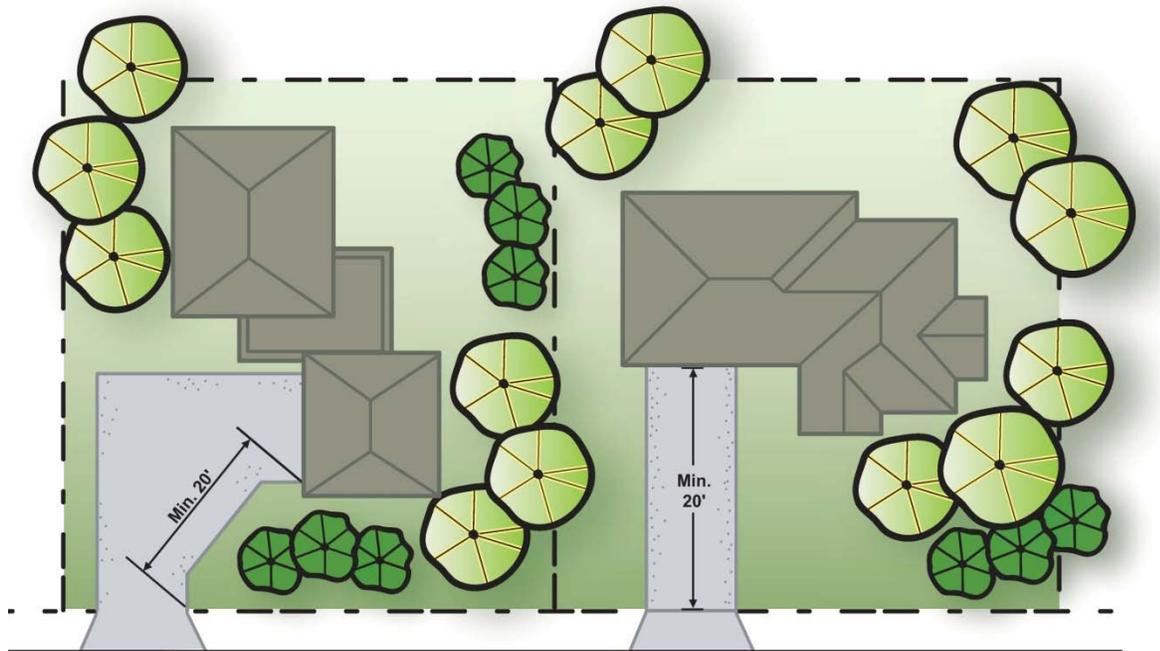
#### **1. Driveways**

A residential driveway shall have a minimum length of 20' between the garage door and public right-of-way, per Section 6792 of the Zoning Ordinance.



Reduced setbacks may be permitted for private roads pursuant to project approval provided it can be shown that the reduced driveway length does not interfere with a sidewalk or other designated pathway. **Figure 11** illustrates the minimum length for residential driveways. Refer to "Access" and "Sight Distance" Sections of this Manual.

**Figure 11**  
**Minimum Length for Residential Driveways**



For multi-family and dense single family developments, it is recommended that parking be distributed throughout the development to discourage residents or guests from illegally parking in a fire access area.

Residential driveways should not exceed a grade of 25 percent. The Director may approve steeper driveways where topographic conditions make it infeasible to comply with the 25 percent limit.

Driveways with a grade greater than 15 percent shall be hard-surfaced and have a deep broom finish perpendicular to the direction of travel, per Section 6792 of the Zoning Ordinance. Driveways which serve as required fire apparatus access roads should not exceed a grade of 15 percent. The Fire Authority Having Jurisdiction may allow driveway grades up to 20 percent with mitigation. Crown or cross-slopes of driveways shall be 2 percent except the minimum cross-slope may be 1 percent and the maximum cross-slope may be 5 percent where physical conditions do not warrant 2 percent. The angle of departure and angle of approach of driveways shall not exceed 12 percent. See **Figure 12** for typical residential driveway profiles.



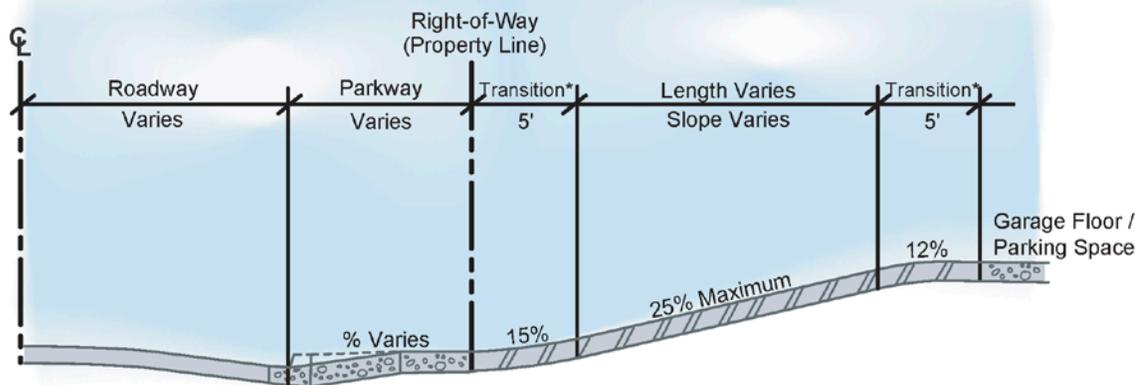
Where driveways cross existing roadside ditches, a dip section providing an unobstructed waterway equivalent to the full area of the ditch may be used if grades are feasible.

Per Section 6792 of the Zoning Ordinance:

- Where grades make use of a dip section infeasible, a culvert pipe shall be installed.
- The size of the culvert pipe and design of the driveway culvert shall be reviewed for adequacy by the Department of Public Works.

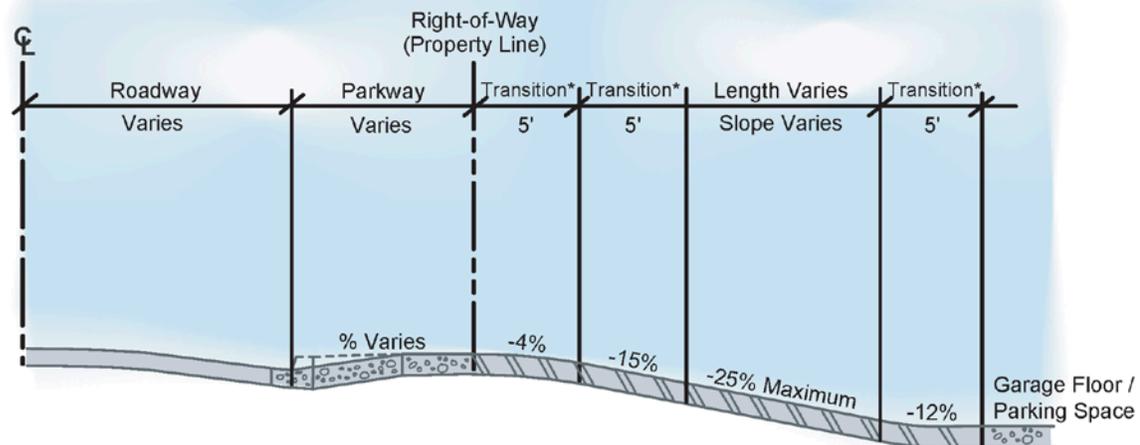
**Figure 12**  
**Example of Residential Driveway Slope Gradients**

### Uphill Driveway



\*Transitions apply to driveway slope gradients greater than 14%.

### Downhill Driveway



\*Transitions apply to driveway slope gradients greater than 14%.

**NOTE: Driveways designated as fire access roads shall comply with the Fire Authority Having Jurisdiction (FAHJ), e.g. the County of San Diego Consolidated Fire Code or the County Fire Marshal.**

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## 2. Garages

For all enclosed residential garages, a minimum parking space size 10' wide by 20' long is required for parking spaces where the length of the space is next to a wall and 9' wide by 20' long for any additional spaces. The space(s) should be kept free from obstruction (i.e. water heater, laundry equipment, etc.).



## IV. PARKING ALTERNATIVES

### A. Shared Parking Reduction

Where two or more adjacent nonresidential uses have distinct and differing peak parking usage periods, (e.g. a theater and a bank), a reduction in the required number of parking spaces may be approved by the decision-making authority based on the findings and recommendations of a qualified parking or traffic consultant. The maximum reduction may be up to the number of parking spaces required for the least intensive use. Refer to Section 6750 et seq. of the Zoning Ordinance for more information.

### B. Surplus Parking

Parking spaces provided in addition to the minimum required, per Section 6758 of the San Diego County Zoning Ordinance, may be designed for standard, oversized, or compact vehicle use.



County of San Diego

# Parking Design Manual

Department of Planning & Land Use

## ***APPENDIX***



**APPENDIX A:  
MINIMUM PARKING LAYOUT DIMENSIONS**

Figure 3 Reference ID	Design Component	Parking Angle (Degrees)												
		0° (Parallel)	30°	35°	40°	45°	50°	55°	60°	65°	70°	75°	90°	
A	Stall Width	9' (8')	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	9'	
B	Stall Length	22'	18'	18'	18'	18'	18'	18'	18'	18'	18'	18'	18'	
C	Stall Width Parallel to Aisle	NA	18'-0"	15'-8"	14'-0"	12'-9"	11'-9"	10'-10"	10'-5"	9'-11"	9'-9"	9'-4"	9'-0"	
D	Stall Depth to Curb or Wall	NA	16'-10"	17'-8"	18'-6"	19'-1"	19'-7"	19'-11"	20'-1"	20'-1"	20'-0"	19'-9"	18'-0"	
E	Stall Depth to Interlock	NA	12'-11"	14'-0"	15'-1"	15'-11"	16'-8"	17'-4"	17'-10"	18'-2"	18'-6"	18'-7"	18'-0"	
F	Aisle Width (1):	One-Way	13'	14'	14'	15'	16'	17'	18'	19'	19'	19'	19'	NA
		Two Way	24'	22'	22'	23'	24'	24'	24'	24'	24'	26'	26'	26'
G	Module Width - Wall/Curb to Interlock:	One-Way Aisle	NA	43'-9"	45'-8"	48'-7"	51'-0"	53'-3"	55'-3"	46'-11"	57'-3"	57'-6"	57'-4"	NA
		Two-Way Aisle	NA	51'-9"	53'-8"	56'-7"	59'-0"	60'-3"	61'-3"	61'-11"	62'-3"	64'-6"	64'-4"	62'-0"
H	Module Width - Interlock to Interlock:	One-Way Aisle	NA	39'-10"	42'-10"	45'-2"	47'-10"	50'-4"	52'-8"	54'-8"	55'-4"	56'-0"	56'-2"	NA
		Two-Way Aisle	NA	47'-10"	50'-0"	53'-2"	55'-10"	57'-4"	58'-8"	59'-8"	60'-4"	63'-0"	63'-2"	62'-0"
-	Module Width - Wall/Curb to Wall/Curb:	One-Way Aisle	31'-0"	47'-8"	49'-4"	52'-0"	54'-2"	56'-2"	57'-10"	59'-2"	59'-2"	59'-0"	58'-6"	NA
		Two-Way Aisle	42'-0"	55'-8"	57'-4"	60'-0"	62'-2"	63'-2"	63'-10"	64'-2"	64'-2"	66'-0"	65'-6"	62'-0"
I	Cross Aisle Width (1):	One-Way	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'	15'
		Two Way	22'	22'	22'	22'	22'	22'	22'	22'	22'	22'	22'	22'